

**HOT RUNNER TYPE MOLD, HOT RUNNER VALVE TO BE USED FOR THAT MOLD, AND INJECTION MOLDING METHOD FOR WHICH SUCH A HOT RUNNER TYPE MOLD IS USED**

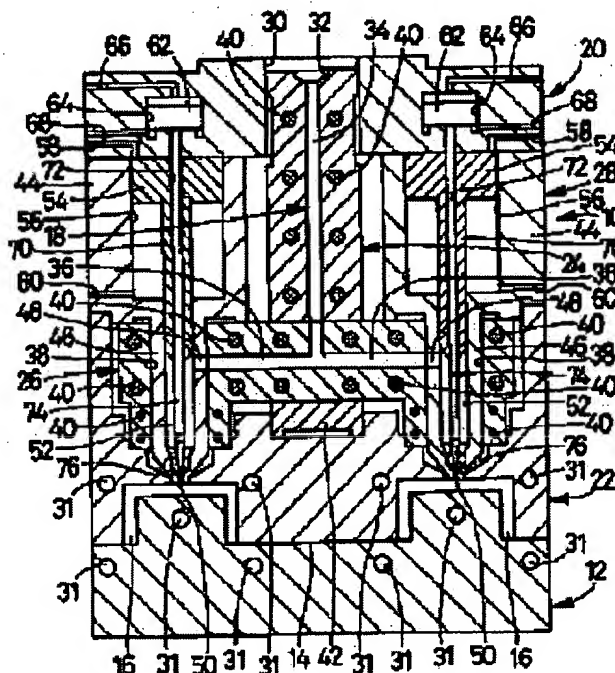
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**Abstract of JP7266379**

**PURPOSE:** To provide a hot runner type mold wherein pressurizing force is applied efficiently to a resin material filled into a molding cavity and generation of a short shot in a molded product is prevented.

**CONSTITUTION:** In a hot runner type mold possessing a resin flow path 18 comprised of a sprue 34, runners 36, 52 and a gate 50, a flow path intercepting device 70 cutting the resin flow path 18 apart into a sprue 34 side and gate 50 side is provided and while a pressurizing device 70 pressurizing a molten resin material on the inside of the resin flow path 18 which is on a gate 50 side cut apart by the flow path intercepting device 70 is provided, valve device 74 opening or closing the gate 50 is provided.



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English Translation of JP7266379

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(71) applicant: Meiki-seisakusho (ltd)

(54) name of invention:

Hot runner mold and injection molding method using  
Said hot runner valve and its mold

(57) abstract:

(purpose)

It is to offer hot runner mold which can apply pressure effectively to  
the resin material injected to the cavity resulting  
to prevent short shot of molded parts.

(system construction)

Hot runner mold which has resin flow channel 18. Flow channel 18  
is composed of sprue 34, runner 36, 52 and gate 50. Flow channel 18  
is connected to the flow-shut-off device 70 which separate the flow from  
sprue 34 to the gate 50.

Piston cylinder (flow-shut-off device) 70 can apply pressure to the molten  
resin material in flow channel 18 which is separated from gate 50 side.

Piston cylinder can be activated by valve mechanism 74 for open-close

Motion of gate 50.

### Brief description of drawings

- (fig 1) Section fig. of this invention showing brief construction of the hot runner mold.
- (fig 2) partial drwg. of fig. 1 showing the first step of this process of this invention.
- (fig 3) the 2nd. step of this process.
- (fig 4) the 3 rd. step of this process.
- (fig 5) the 4th. Step of this process.

### Description of NO. in figs.

- 10 fixed base of mold
- 12 moving base of mold
- 16 cavity
- 18 resin flow channel
- 20 clamping plate of mold
- 22 cavity block
- 24 sprue block
- 26 runner block
- 28 cylinder block
- 31 cooling channel
- 34 sprue
- 36 runner of sprue side
- 40 cartridge heaters
- 42 thermal insulation parts
- 44 mold body
- 46 nozzle, torpedo-shape body
- 48 connecting flow hole
- 50 gate
- 52 runner of gate side
- 54 piston-1
- 56 cylinder chamber for piston-1
- 62 piston-2
- 64 cylinder chamber for piston-2
- 70 the first valve body
- 72 connecting flow hole
- 74 the second valve body

## Claims of patent

1. hot runner mold which has:  
flow-shut-off device which separate resin flow channel to sprue side and gate side. This device can apply pressure to the resin material in gate side channel which is separated by the device.  
And the device has valve in it.
2. mold mentioned in claim 1, has the device which can shut off the flow of the runner, can apply pressure and has valve to close the gate respectively.
3. mold mentioned in claim 2, consisted of  
the first valve in said runner channel which can move up and down, can shut off the flow, and can apply pressure, and has the second valve in it.  
The second valve is installed in the center of the first valve body in co-axial direction and can move to seal the gate.
4. multi-gate system of above mentioned ( claims 1 to 3) mold .
5. above mentioned mold which has cooling channel for temperature control.
6. the above mentioned (claims 1 to 5 or one of the claim) mold which is consisted of insulation material between cavity and runner, and the material of runner body is differ from that of cavity body
7. in above mentioned process, the second valve can seal the gate.
- 8 in above mentioned mold, two device of the first and the second valve body, have activating means to move the two bodies separately.
9. using above mentioned mold, process of filling resin material into runner channel after closed the gate, process of pushing the resin material into cavity after open the gate, process to push material into cavity after closed the supply side of hole, process to eject the molded parts from cavity, based on the process of claims 1 to 6.
10. during the sequential process above mentioned as claim 1 to 9, separate unit of injection molding machine is to prepare the material for the next molding cycle by plasticizing the resin material

## Detail explanation of the invention

(0001) technology category:

hot runner mold with

hot runner valve and injection molding process using hot runner mold

(0002)back ground of technology:

short-shot is one of the serious trouble at injection molding,  
especially for molding comb, small connector and socket which  
need full flow up to the end of tiny flow channel of cavity.

(0003) such defects are hard to find by eye.

(0004) higher resin temperature setting or higher injection pressure

have been applied for preventing the short-shot defects, however,  
these arrangement are not good for molding from many reasons.

(0005) this invention will improve above mentioned trouble.

(0006)-(00015) mentioned in claims.

(00016) example

(0017-68) details of the parts and function of those.

Such as insulation bushing, heater cartridge, cooling and etc.

Temperature control unit.

Hydraulic piston cylinder, solenoid, electrical switch,

Hydraulic cylinder mechanism: all generally available prior

Engineering parts.

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